

Serial No. 09/724,493

PatentListing of Claims

1. (Original) A powder coating composition comprising:
 - a). a first component comprising a mixture of
 - (i). at least one glycidyl group-containing acrylic resin having epoxide equivalent weight of from about 250 to about 1500 and glass transition temperature of from about 30° C to about 80° C; and
 - (ii). a curing agent selected from the group consisting of dicarboxylic acids, dicarboxylic acid anhydrides, and mixtures thereof; and
 - b). a second component dry-blended with said first component (a), comprising at least one carboxyl-group containing material that has acid number of from about 10 to about 300 and that is not substantially compatible with said first component (a).
2. (Original) The powder coating composition of claim 1, wherein said first component (a) further comprises a catalyst.
3. (Original) The powder coating composition of claim 1, wherein said second component (b) further comprises a catalyst.
4. (Original) The powder coating composition of claim 2, wherein said second component (b) further comprises a catalyst.
5. (Original) The powder coating composition of claim 1, wherein said second component (b) further comprises a crosslinker.
6. (Original) The powder coating composition of claim 1, wherein said second component (b) is present in an amount of from about 1% to about 40% by weight, based on the total weight of said first component (a) and said second component (b).

Serial No. 09/724,493

Patent

7. (Original) The powder coating composition of claim 6, wherein said second component (b) is present in an amount of from about 3% to about 25% by weight, based on the total weight of said first component (a) and said second component (b).

8. (Original) The powder coating composition of claim 7, wherein said second component (b) is present in an amount of from about 5% to about 20% by weight, based on the total weight of said first component (a) and said second component (b).

9. (Original) The powder coating composition of claim 1, wherein said carboxyl-group containing material comprised in second component (b) is selected from the group consisting of carboxyl-group containing polyester resins, carboxyl-group containing acrylic resin, and carboxyl-group containing polyethylene and polypropylene.

10. (Original) The powder coating composition of claim 9, wherein said carboxyl-group containing material is carboxyl-group containing polyester resins having an acid number of from about 25 to about 250.

11. (Withdrawn) The powder coating composition of claim 9, wherein said carboxyl-group containing material is carboxyl-group containing acrylic resins having an acid number of from about 35 to about 300.

12. (Withdrawn) The powder coating composition of claim 9, wherein said carboxyl-group containing material is carboxyl-group containing polyethylene and polypropylene selected from the group consisting of ethylene-acrylic acid copolymers, propylene-acrylic acid copolymers, propylene-methacrylic acid copolymers, ethylene-methacrylic acid copolymers, maleic anhydride polyethylene copolymers, and maleic anhydride ethylene copolymers.

13. (Withdrawn) The powder coating composition of claim 12, wherein said carboxyl-group containing polyethylene and polypropylene is ethylene-acrylic acid

Serial No. 09/724,493

Patent

copolymers or propylene acrylic acid copolymers having an acid number of from about 25 to about 125.

14. (Original) The powder coating composition of claim 2, wherein said catalyst is selected from the group consisting of stannous octanoate, stannous laurate, stannous stearate, stannous 2-ethylhexanoate, stannous chloride, stannous bromide, and mixtures thereof.

15. (Original) The powder coating composition of claim 3, wherein said catalyst is selected from the group consisting of stannous octanoate, stannous laurate, stannous stearate, stannous 2-ethylhexanoate, stannous chloride, stannous bromide, and mixtures thereof.

16. (Original) The powder coating composition of claim 1, wherein said ingredient (i) has epoxide equivalent weight of from about 250 to about 800 and glass transition temperature of from about 35° C to about 65° C.

17. (Original) The powder coating composition of claim 1, wherein said composition exhibits, upon cure, a 60° gloss of less than about 55.

18. (Original) The powder coating composition of claim 17, wherein said composition exhibits, upon cure, a 60° gloss of from about 10 to about 40.

19. (Original) The powder coating composition of claim 1, wherein said composition exhibits, upon cure, a pencil hardness of from about H to about 6H.

20. (Original) The powder coating composition of claim 19, wherein said composition exhibits, upon cure, a pencil hardness of from about 2H to about 6H.

Serial No. 09/724,493

Patent

21. (Original) The powder coating composition of claim 1, wherein the curing agent (ii) is a dicarboxyl acid anhydride and the stoichiometric ratio of the curing agent (ii) to the glycidyl groups existing in ingredient (i) being from about 0.4 to about 0.7.

22. (Original) The powder coating composition of claim 21, wherein said composition exhibits, upon cure on wood substrate, a substantially free of blooming appearance.

23. (Original) The powder coating composition of claim 1, wherein the stoichiometric ratio of the curing agent (ii) to the glycidyl groups existing in component (i) is from about 0.7 to about 1.5.

24. (Original) The powder coating composition of claim 1, wherein the curing agent (ii) is selected from the group consisting of succinic acid, adipic acid, azelaic acid, sebamic acid, eicosanedioic acid, dodecanedioic acid, glutaric acid, pimelic acid, and anhydrides thereof.

25. (Original) The powder coating composition of claim 1, wherein said second component (b) has a particle size of from about 0.1 micron to about 250 micron.

26. (Original) The powder coating composition of claim 25, wherein said second component (b) has a particle size of from about 1 micron to about 100 micron.

27. (Original) The powder coating composition of claim 26, wherein said second component (b) has a particle size of from about 5 micron to about 60 micron.

28. (Withdrawn) A method of manufacturing the powder coating composition of claim 1, comprising:

melt-blending ingredients (i) and (ii) to obtain first component (a); and
dry-blending said first component (a) with second component (b) to obtain said powder coating composition.

Serial No. 09/724,493

Patent

29. (Withdrawn) The method of claim 28, wherein said first component (a) further comprises a catalyst.

30. (Withdrawn) The method of claim 28, wherein said second component (b) further comprises a catalyst, said catalyst being incorporated into said second component (b) by melt-blending with said second component (b) prior to dry-blending said second component (b) with said first component (a).

31. (Withdrawn) The method of claim 28, wherein said second component (b) is prepared by incorporating any optional ingredients into said second component (b) through melt-blending prior to dry-blending said second component (b) with said first component (a).

32. (Original) An article comprising a substrate, and a cured coating thereon from the powder coating composition of claim 1, wherein said coating exhibits 60° gloss of less than about 55.

33. (Original) The article of claim 32, wherein said coating, upon cure, exhibits 60° gloss of from about 10 to about 40.

34. (Original) The article of claim 32, wherein said coating, upon cure, exhibits a pencil hardness of from about H to about 6H.

35. (Original) The article of claim 32, wherein said substrate is selected from the group consisting of metal, plastic and wood substrates, and mixtures thereof.

36. (Original) An article comprising a wood substrate, and a cured coating thereon from the powder coating composition of claim 21, wherein said coating exhibits a 60° gloss of less than about 60, and a substantially free of blooming appearance.

Serial No. 09/724,493

Patent

37. (Original) The article of claim 36, whercin said coating exhibits a pencil hardness of from about H to about 6H.

Serial No. 09/724,493

Patent

Respectfully submitted,

Date: 10/05/04

Bin Su

Bin Su, Reg. No. 51,309

H.B. FULLER COMPANY
Patent Department
1200 Willow Lake Blvd.
P.O. Box 64683
St. Paul, MN 55164-0683
Tel: (651) 236-5502
Fax: (651)236-5126